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Friendl yNET 7000 Series Gigabit Ethernet Switches

User's Manual

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About This Manual

This manual describes the complete line of FriendlyNET 7000 Series Gigabit Switches. The manual often focuses on two models:

- ❑ FS7108 — eight-port 10/100Mbps Fast Ethernet switch plus one-port Gigabit module
- ❑ FS7016 — sixteen-port 10/100Mbps Fast Ethernet switch with two expansion slots

The FS7108 model is fixed in a single configuration. The FS7016 is an base unit which may be configured in a variety of ways by adding expansion modules.

Because the addition of an expansion module to the FS7016 base unit effectively changes the model number of the unit (as described in “Model Numbering Convention” on page 1-2), this manual refers to all configurations deriving from the FS7016 (all models that are 1.5 rack-units high).

Unless otherwise noted, all information provided in this manual is applicable to all configurations within the 7000 Series family of FriendlyNET Switches.

This manual also describes three optional slide-in modules:

- ❑ Gigabit SX XP Module — one-port 1000Base-SX expansion module
- ❑ 10/100 8-Port XP Module — eight-port 10/100Mbps expansion module
- ❑ 100 FX MII Module — one-port 100Base-FX Media Independent Interface module

Chapter Contents

This manual is divided into the following chapters and appendices:

- ❑ Chapter 1, “Introduction,” provides an overview of FriendlyNET 7000 Series Gigabit Switches, their features and switching technology
- ❑ Chapter 2, “Installation,” describes the components and explains how to install, mount, and apply power to FriendlyNET 7000 Series Gigabit Switches
- ❑ Chapter 3, “LED Indicators,” describes how to interpret the LEDs on FriendlyNET 7000 Series Gigabit Switches
- ❑ Appendix A, “Troubleshooting,” explains how to solve problems by monitoring the LEDs on FriendlyNET 7000 Series Gigabit Switches
- ❑ Appendix B, “Specifications,” describes the FriendlyNET 7000 Series Gigabit Switches’ technical specifications
- ❑ Appendix C, “Technical Support” explains how to contact Asanté Technical Support

Document Conventions

This manual uses the term “Switch” (first letter upper case) to refer to FriendlyNET 7000 Series Gigabit Switches, and “switch” (first letter lower case) to refer to all other Ethernet switches (or to other types of switches, such as a power switch).

This manual uses the following conventions to convey instructions and information:

- ◆ *Note:* Noteworthy information, which contains helpful suggestions or references to other sections in the manual, is in this format.
- ▲ **Important!** Significant information that calls attention to important features or instructions is in this format.

Introduction

This chapter introduces Asanté FriendlyNET 7000 Series Gigabit Switches and provides an overview of switching technology.

Introducing the FriendlyNET 7000 Series

Thank you for purchasing an Asanté FriendlyNET 7000 Series Gigabit Switch. FriendlyNET 7000 products are unmanaged 10/100 Fast Ethernet switches which provide built-in or optional Gigabit Ethernet connectivity. These switches are designed to address increasing network bandwidth needs and to accommodate future network expansion.



Figure 1-1 FriendlyNET 7108 Gigabit Switch

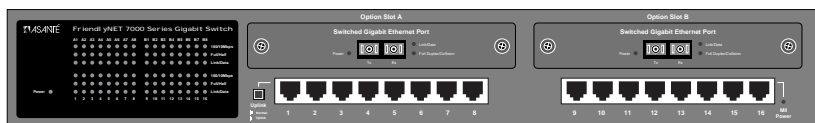


Figure 1-2 FriendlyNET 7016 Gigabit Switch

Each Switch features full plug-and-play installation. LED indicators include power, MII power, 100/10Mbps, full- or half-duplex, and link/data, for easy monitoring of Switch operation.

For network expansion, each Switch has an uplink port that makes it easy to connect to another Fast Ethernet switch or to the network backbone.

The FS7016 has two expansion slots built in to the front panel. A Gigabit SX XP module or a 10/100 8-port XP module can be easily plugged in to either or both of the expansion slots. Each Asanté Gigabit SX expansion module adds a 1,000Mbps port, for connection to a high-speed server or the corporate backbone. Each Asanté 10/100 8-port expansion module adds another 8 ports to the Switch.

Introduction

A Media Independent Interface (MII) slot is built in to the back panel of all 7000 Series Switches. An Asanté 100 FX MII module can easily be plugged in to allow for 100Base-FX connections.

Model Numbering Convention

Model numbers for the Asanté FriendlyNET family of switches adhere to the following convention:

- ❑ The first digit identifies the series number
- ❑ The second digit indicates the number of Gigabit ports
- ❑ The third and fourth digits indicate the number of Fast Ethernet dual speed 10/100 ports

Configuration Options

You may have bought your unit pre-configured, or you may have configured it yourself by adding expansion modules. The following tables show all possible configurations for FriendlyNET 7000 Series Gigabit Switches.

Table 1-1 Configuration Options: 1 Rack-Unit High (1.65 inches)

Configuration	Model Number (or equivalent)	8-Port XP Modules	Gigabit XP Modules
8-port 10/100M switch + 1 Gigabit module	7108	0	1

Table 1-2 Configuration Options: 1.5 Rack-Unit High (2.5 inches)

Configuration	Model Number (or equivalent)	8-Port XP Modules	Gigabit XP Modules
16-port 10/100M switch	7016	0	0
24-port 10/100M switch	7024	1	0
32-port 10/100M switch	7032	2	0
16-port 10/100M switch + 1 Gigabit module	7116	0	1
24-port 10/100M switch + 1 Gigabit module	7124	1	1
16-port 10/100M switch + 2 Gigabit modules	7216	0	2

Features

The FriendlyNET 7000 Series Gigabit Switch has the following features:

- ☐ Compact size — designed for small to large workgroups in space-limited areas; installs on desktop or in a standard 19-inch equipment rack
- ☐ Plug-and-play installation
- ☐ Connects from eight to thirty-two (depends on model) 10Base-T or 100Base-TX segments per switch
- ☐ Provides additional connectivity options via two expansion slots. Each slot supports a 1000Base-SX or 8-port 10/100 module
- ☐ Provides for optional 100Base-FX connections
- ☐ Provides an uplink selector button for connecting to another network device without using a crossover cable
- ☐ Allows cascading from any port to any number of switches (limit of seven chained switches in spanning tree enabled networks)
- ☐ NWay auto-negotiation on all ports automatically senses port speed (10/100Mbps) and negotiates duplex mode (full-duplex or half-duplex)

Introduction

- ❑ Complies with IEEE 802.3 Ethernet, IEEE 802.3u Fast Ethernet, IEEE 802.3z Gigabit Ethernet, and IEEE 802.3x flow control (in full-duplex mode) standards
- ❑ Works with Category 3 (10Mbps operation only) or Category 5 UTP (unshielded twisted-pair) cable for 10/100Mbps connections
- ❑ Provides power, MII power, 100/10Mbps, full- or half-duplex, and link/data LEDs to aid network diagnosis and simple management
- ❑ Ideal for deployment with high-speed servers, dedicated bandwidth (10Mbps or 100Mbps) workgroups, or as a segmentation device for larger congested networks

Performance Features

FriendlyNET 7000 Series Switches have the following performance features:

- ❑ Data forwarding rate at 100% of wire-speed, or 148,800pps at 100Mbps, 14,880pps at 10Mbps for 64-byte packets
- ❑ Data filtering at 100% of wire-speed
- ❑ 12K active MAC address entry table per device (self-learning)
- ❑ 4MB packet buffer per device

Switching Technology

This section provides a brief overview of switching technology, including Fast Ethernet and Gigabit Ethernet.

An Ethernet switch is a device that can direct network traffic among several Ethernet and Fast Ethernet networks. A switch increases network capacity and decreases network loading by making it possible for a LAN to be divided into multiple, unique dedicated *segments*.

In Fast Ethernet networks, a switch allows chaining of hubs beyond the “two-repeater limit.” A switch can be used to separate the network into different collision domains, which allows expansion beyond the 205 meter diameter limit for 100Base-TX networks.

Switch Acts as a Bridge Between Network Segments

A switch acts as a high-speed selective bridge between individual segments. Traffic that needs to go from one segment to another is automatically forwarded by a switch, without interfering with any other segments. This allows the total network capacity to be multiplied while decreasing network loading.

To ensure network reliability, a switch monitors each of its ports for signal quality. The switch automatically disconnects stations transmitting excessive noise, then reconnects them when the problem is resolved. A switch also automatically drops data packets that exceed the maximum allowable length. This prevents a device from blocking the network by transmitting continuous data streams or extra-long packets.

The FriendlyNET 7000 Series Switch supports *store-and-forward* switching. If the speeds are different, such as for a 10Mbps workstation connected to a 100Mbps server, the switch will buffer and read the entire packet, perform a data validity check, then forward the packet at the new speed.

The FS7000 Series utilizes an advanced third generation switching engine. It features high port count in a high integration package. For wire speed performance, the 7108 features a 2.4Gbps bus, while the 7016 base unit has a 9.6Gbps cross-bar bus to support its higher port count configurations.

Fast Ethernet and Gigabit Ethernet Technology

As the volume of network traffic increases, the bandwidth offered by a typical 10Mbps Ethernet network quickly becomes inadequate to maintain acceptable performance for a growing number of desktop/server computing environments. Fast Ethernet, or 100Base-T, provides a smooth, non-disruptive evolution from 10Base-T technology.

The growing use of Fast Ethernet connections to servers and desktops is creating a clear need for an even higher-speed network technology at the backbone and server level. Gigabit Ethernet follows the same form, fit and function as its 10Mbps and 100Mbps Ethernet precursors, allowing a straightforward, incremental migration to higher-speed networking. This evolutionary upgrade path allows Gigabit Ethernet to be seamlessly integrated into existing Ethernet and Fast Ethernet networks.

All of today's internetworking technologies are fully compatible with Gigabit Ethernet, just as they are with Ethernet and Fast Ethernet. All three Ethernet speeds use the same IEEE 802.3 frame format, full-duplex operation and flow control methods. In half-duplex mode, Gigabit Ethernet employs the same fundamental CSMA/CD access method to resolve contention for the shared media. And, Gigabit Ethernet uses the same management objects defined by the IEEE 802.3 group. Gigabit Ethernet is Ethernet, only faster.

Asanté FriendlyNET 7000 Series Switches support not only traditional 10Mbps Ethernet and 100Mbps Fast Ethernet, but also Gigabit Ethernet, and are ideal for bridging them without the need for a separate device.

Introduction

2

Installation

This chapter describes the components and explains how to install, mount, and apply power to your FriendlyNET 7000 Series Gigabit Switch. It contains the following sections:

- ☐ Package Contents
- ☐ Components
- ☐ Expansion Modules
- ☐ 100 FX MII Module
- ☐ Mounting Configurations
- ☐ Cabling Requirements
- ☐ Connecting Network Devices
- ☐ Voltage Requirements
- ☐ Powering on the Switch

Package Contents

FriendlyNET 7000 Series Gigabit Switches are shipped with the following items:

- ☐ (1) FriendlyNET 7000 Series Gigabit Switch
- ☐ (1) AC power cord
- ☐ (4) Self-adhesive rubber feet
- ☐ (1) Rack-mount kit which includes two rack-mounting brackets and mounting screws
- ☐ (1) User's Manual (this book)

Components

This section describes the front- and back-panel layouts of the FS7108 and FS7016 Switches.

The only control on the front panel is the uplink push-button switch. The only control on the rear panel is the power switch. The LED indicators are described in detail in Chapter 3.

The uplink push-button switch is connected to a single port on each Switch. In Normal position, the port associated with the uplink switch operates like any other port on the unit. When the uplink push-button is in the depressed position, the port associated with the uplink switch becomes an uplink port and eliminates the need for a crossover cable.

FS7108

The front panel of the FS7108 contains eight 10/100Mbps ports, one Gigabit Ethernet port, one uplink switch button, and LED indicators. See Figure 2-1.

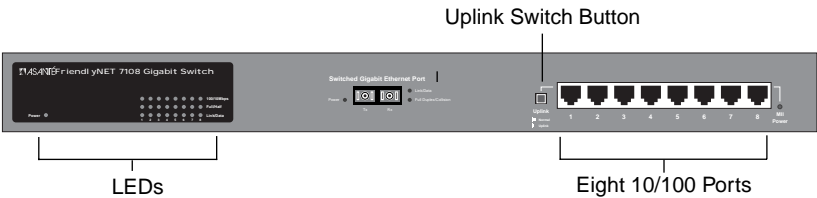


Figure 2-1 FS7108 front panel

The back panel of the FS7108 contains a 100–240 volt AC power connector, a power switch, and an MII slot. See Figure 2-2.



Figure 2-2 FS7108 back panel

FS7016 Base Unit

The front panel of the FS7016 contains sixteen 10/100Mbps ports, two expansion slots, one uplink switch button, and LED indicators. See Figure 2-3.

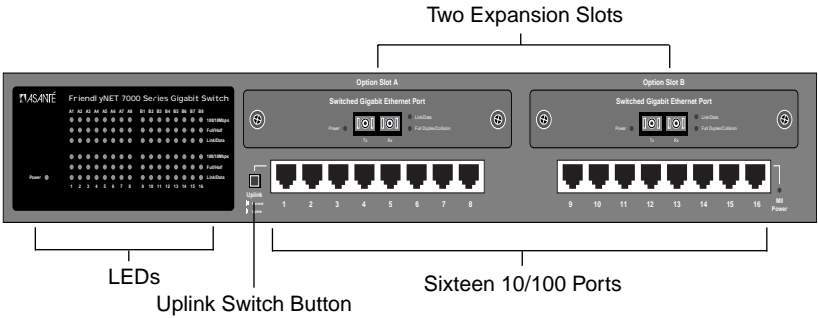


Figure 2-3 FriendlyNET 7016 front panel

The back panel of the FS7016 contains a 100–240 volt AC power connector, a power switch and an MII slot. See Figure 2-4.



Figure 2-4 FriendlyNET 7016 back panel

Expansion Modules

This section describes the two optional expansion modules that can easily be added to FriendlyNET 7000 Series Switches, and gives instructions for their installation.

Gigabit SX XP Module

Each Asanté Gigabit SX expansion module adds a 1,000Mbps port, for connection to a high-speed server or the corporate backbone. The module includes Gigabit Tx (transmit) and Rx (receive) ports and LED indicators. The Gigabit module's LEDs are described in detail on page 3-4. Installation is easy.

Installation

To install the Gigabit SX XP Module:

- 1** Power down the unit.
- 2** Remove the metal cover from the front of an empty expansion slot (located on the Switch's front panel) using a small Phillips screwdriver.
- 3** Align the bottom of the Gigabit module with the rails on the inside of the expansion slot. See Figure 2-5.

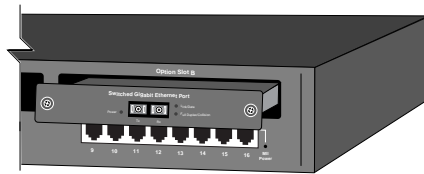


Figure 2-5 Installing a Gigabit module

- 4** Slide the module into the expansion slot until it stops, then push the module in until it seats with the connector.
- 5** Secure the module into place by tightening the screws on the module's cover using a small Phillips screwdriver.

10/100 8-Port XP Module

Each Asanté 10/100Mbps 8-port expansion module adds another 8 ports to the Switch. Installation is easy.

To install the 10/100 8-Port XP Module:

- 1** Power down the unit.
- 2** Remove the metal cover from the front of an empty expansion slot (located on the Switch's front panel) using a small Phillips screwdriver.
- 3** Align the bottom of the 8-port expansion module with the rails on the inside of the expansion slot.
- 4** Slide the module into the expansion slot until it stops, then push the module in until it seats with the connector.
- 5** Secure the module into place by tightening the screws on the module's cover using a small Phillips screwdriver.

- ◆ **Note:** Each 10/100 expansion module provides 8 ports which are numbered 1 through 8. If the module is installed in Option Slot A, the ports on the module will correspond to LED indicators A1–A8. If the module is installed in Option Slot B, the ports on the module will correspond to LED indicators B1–B8.

100 FX MII Module

All FriendlyNET 7000 Series Gigabit Switches include one Media Independent Interface (MII) slot on the rear panel of the unit which allows for connection to 100Base-FX media.

The Asanté 100 FX MII Module is sold separately and complies with IEEE 802.3 and 802.3u (10/100Base-T and 100Base-FX) specifications. The module is equipped with a 100Base-FX Fiber SC connector and can easily be installed in the MII slot of FS7000 Series Switches.

- ▲ **Important:** When an MII module is installed, one of the 10/100Mbps ports becomes disabled. The 8th switching port on FS7108 models, or the 16th switching port on FS7x16 models, is shared with the MII Module. When an MII Module is plugged in, it has priority for that port.
- ▲ **Important:** MII modules are hot-swappable; you can install and/or remove the module without turning the switch's power off.

To install a 100 FX MII module:

- 1 Unscrew the metal cover from the front of the MII slot (located on the Switch's back panel) using a small Phillips screwdriver. See Figure 2-6.

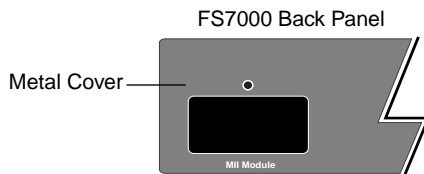


Figure 2-6 MII slot

Installation

- 2** Align the bottom of the MII module with the rails on the inside of the MII slot.
- 3** Slide the MII module into the MII slot until it stops, then push the module in until it seats with the connector. See Figure 2-7.

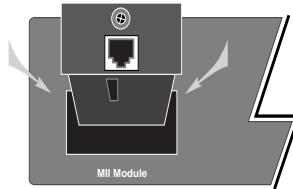


Figure 2-7 Installing an MII module

- 4** Screw the module into place by tightening the thumbscrew on the module's cover. See Figure 2-8.

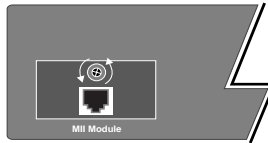


Figure 2-8 Securing an MII module

- 5** Connect the installed MII module to your network, following the instructions below.

Mounting Configurations

This section describes how to mount the FriendlyNET 7000 Series Gigabit Switch on a desktop or install it in an equipment rack.

Desktop Mounting

To mount the Switch on a desktop or shelf:

- 1 Attach the four rubber feet (supplied) to the bottom of each corner on the Switch. See Figure 2-9.

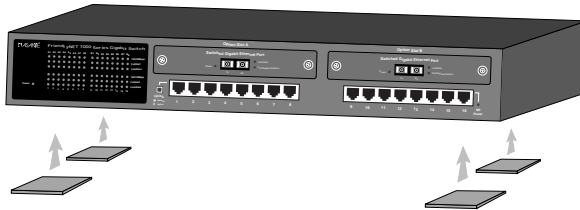


Figure 2-9 Desktop mounting

- 2 Place the Switch on a flat, stable, horizontal desktop or shelf.

Make sure you allow enough ventilation space between the Switch and surrounding objects.

The Switch is ready for network connections.

Rack Mounting

All 7000 Series Switches come with a rack-mounting kit and can be mounted in a standard 19-inch equipment rack. This rack can be placed in a wiring closet with other equipment.

To install the Switch in an equipment rack:

- 1 Attach the two mounting brackets (supplied) on each side of the chassis. See Figure 2-10.

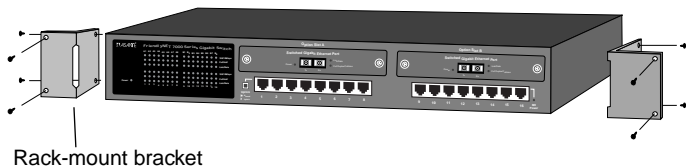


Figure 2-10 Attaching mounting brackets to the FS7000

Installation

- 2 Mount the Switch in the equipment rack by screwing the mounting brackets to the equipment rack. See Figure 2-11.

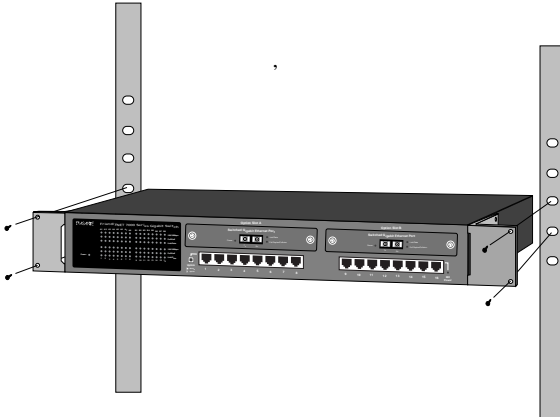


Figure 2-11 Mounting the FS7000 in an equipment rack

The rack mounting is complete. The Switch is ready for network connections.

Cabling Requirements

This section describes the type of cabling required for various types of connections.

100Base-TX requires the use of data-grade Category 5 UTP (unshielded twisted-pair) cable. Category 3 wiring may be used for 10Base-T.

- ▲ **Important!** Some installations have Category 5 cabling but do not have wall outlets and/or wiring closet punch-down blocks that meet Category 5 requirements.
- ▲ **Important!** 100Base-TX requires that all wiring and accessories meet EIA/TIA 568 specifications for proper operation. When wiring a 100Base-TX network, make sure that the entire cable plant meets specifications.

1000Base-SX (via Gigabit module) requires dual 62.5/125 micron graded-index multimode fiber-optic cable with an SC connector.

100Base-FX (via MII module) requires dual 62.5/125 micron graded-index multimode fiber-optic cable with an SC connector.

Connecting Network Devices

This section describes how to connect computers, hubs and switches to the FS7000 Switch, and how to connect multiple FS7000 Switches together.

Before you connect network devices to the Switch, review the following guidelines:

- ☐ Make sure the network cable length is less than 100 meters (Category 5 and up)
- ◆ *Note:* Category 3 is acceptable for 10Base-T
- ☐ Use a straight-through twisted pair cable or a crossover cable when appropriate for either uplink or standard data ports
- ☐ When connecting two switches together (cascading switches), make sure that the link between them is no longer than 100 meters
- ☐ Network cable segments can be connected to, or disconnected from, the Switch while the Switch's power is on

Connecting a Computer to the Switch

- ☐ Use a four-pair Category 5 UTP straight-through cable with RJ-45 connectors
- ☐ Connect the computer to any of the Switch's ports. See Figure 2-12

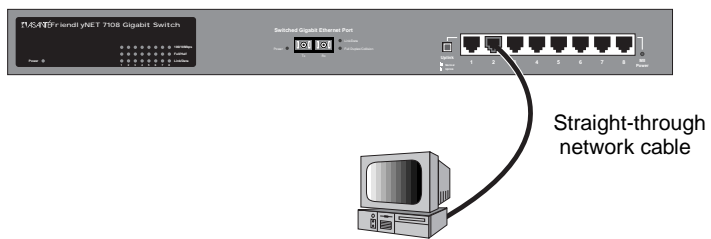


Figure 2-12 Connecting a computer to the Switch

Connecting a Hub or a Switch to the Asanté Switch

- ❑ Use a two-pair Category 5 UTP straight-through cable with RJ-45 connectors
- ❑ Connect the hub's uplink port to any of the Switch's ports. See Figure 2-13.

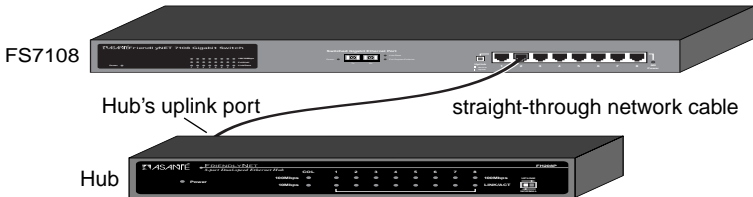


Figure 2-13 Connecting a hub to the Switch

Connecting a Hub with No Uplink Port to the Switch

If a hub is not equipped with an uplink port, connection can be made using straight-through cable, as outlined below. The uplink button on the FS7000 must be depressed. See Figure 2-14.

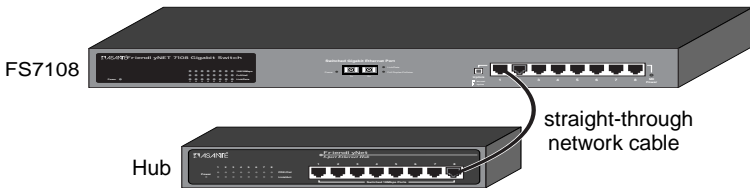


Figure 2-14 Connecting a hub without an uplink port to the Switch

- ◆ **Note:** This applies to the uplink port after powering on the Switch. If you are unsure of your cable type (straight-through or crossover) and the Link LED associated with the port is not on, try pressing the uplink button again.

Cascading Multiple FS7000 Switches

Multiple FriendlyNET 7000 Series Switches can be connected together (called cascading). See Figure 2-15.

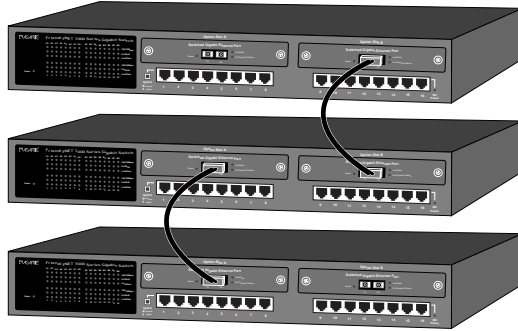


Figure 2-15 Cascading FS7000 Switches

Voltage Requirements

Voltage requirements for all models:

- ❑ 100 to 240 volts AC, 50/60Hz, 1.2A maximum. Power sensing is automatic for all international utility power.
- ▲ **Important!** Check the AC power line voltage used in your area.

Powering on the Switch

The Switch may be turned on with (or without) LAN segment cables connected.

To power on the Switch:

- 1 Connect one end of the power cord (supplied) into the AC power connector on the back panel of the Switch.
 - ◆ *Note:* FS7000 Series Switches are equipped with an internal power supply. Power sensing is automatic for all international utility power.
- 2 Connect the power cord to a local power source outlet.
- 3 Switch the power switch to the “on” position.

LED Indicators

This chapter explains how to interpret the front-panel LED indicators on FriendlyNET 7000 Series Gigabit Switches. There are no LEDs on the rear panel.

The LEDs are used to facilitate monitoring and troubleshooting. With the exception of the Power LED and MII Power LED, all front-panel LEDs are used to monitor the status of each port.

These LEDs are:

- ☐ Power
- ☐ MII Power
- ☐ 10/100Mbps
- ☐ Full/Half
- ☐ Link/Data

The front panel LEDs of the FS7108 and FS7000 are shown in Figure 3-1 and Figure 3-2.

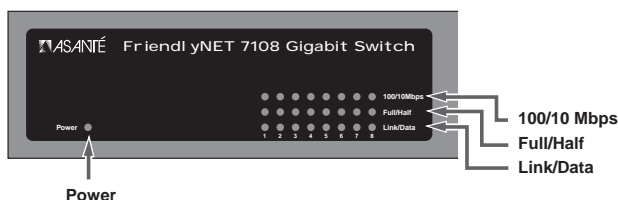


Figure 3-1 FS7108 LEDs

LED Indicators

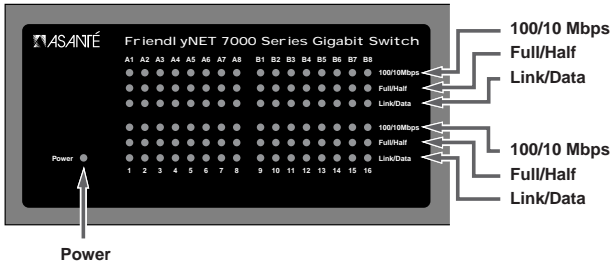


Figure 3-2 FS7000 LEDs

Units with a Gigabit SX XP module installed have the following additional LEDs for monitoring the status of the Gigabit port:

- ☐ Power
- ☐ Link/Data
- ☐ Full Duplex/Collision

Power On LED Indicators

After power is turned on, the LED indicators should respond as follows:

- ☐ All LED indicators blink momentarily. This represents a system reset.
- ☐ The Link/Data LEDs blink from slow to steady as traffic increases.
- ☐ The Power LED indicator lights and remains ON. If this indicator is not lit, check to make sure that the power cord is properly connected at both ends.

MII Power LED

The green MII Power LED indicates whether an MII 100Base-FX module is connected to the Switch. Table 3-1 describes the possible status indications of the MII Power LED.

Table 3-1 MII Power LED Status Indicator

State	Status
On	100Base-FX module is connected
Off	100Base-FX module is not connected

LED Indicators for Port Connections

All FS7000 Series Switches include 100/10Mbps, Full/Half Duplex and Link/Data LED indicators for each 10/100 port on the Switch. On the FS7108, the ports and LEDs are numbered 1–8. On FS7x16 Switches, the ports and LEDs are numbered 1–16, A1–A8, and B1–B8.

The LEDs for ports A1–A8 and B1–B8 are only active if a 10/100 8-port expansion module is installed. When a 10/100 8-port XP module is installed in Option Slot A, these ports are numbered A1–A8. When a 10/100 8-port XP module is installed in Option Slot B, these ports are numbered B1–B8.

100/10Mbps Operation LED

The green 100/10Mbps LED indicates whether the port is operating at 100Mbps or 10Mbps. Table 3-2 describes the possible status indications of the 100/10Mbps LED.

Table 3-2 100/10Mbps LED Status Indicators

State	Status
On	Port is operating at 100Mbps
Off	Port is operating at 10Mbps (default operating speed)

Full/Half Duplex LED

The green or amber Full/Half LED indicates port operation in full- or half-duplex mode, and whether collisions are occurring on the port. Table 3-3 describes the possible status indications of the Full/Half LEDs.

Table 3-3 Full/Half LED Status Indicators

State	Status
Green	Port is in full-duplex mode
Blinking Amber	Port is in half-duplex mode and collisions are occurring on the port
Off	Port is in half-duplex mode

LED Indicators

Link/Data LED

The green Link/Data LED indicates whether a device is detected on the other end of the port, and whether activity is occurring. Table 3-4 describes the possible status indications of the Link/Data LEDs.

Table 3-4 Link/Data LED Status Indicators

State	Status
On	Link is successfully established on the port
Blinking	Data is being transmitted or received on the port
Off	Link is not established on the port

LED Indicators on Gigabit SX Module

Each Gigabit module (when installed) includes its own LED indicators for monitoring the status of the Gigabit port.

Power LED

The Gigabit module's Power LED indicates whether the Gigabit module is receiving power.

Link/Data LED

The Gigabit module's green Link/Data LED indicates when a device is detected on the other end of the Gigabit port, and whether activity is occurring. Table 3-5 describes the possible status indications of the Gigabit Link/Data LED.

Table 3-5 Gigabit Link/Data LED Status Indicators

State	Status
On	Link is successfully established on the port
Blinking	Data is being transmitted or received on the port
Off	Link is not established on the port

Full Duplex/Collision LED

The Gigabit module's green or amber Full Duplex/Collision LED indicates port operation in full- or half-duplex mode, and whether collisions are occurring on the port. Table 3-3 describes the possible status indications of the Gigabit Full Duplex/Collision LED.

Table 3-6 Gigabit Full Duplex/Collision LED Status Indicators

State	Status
Green	Port is in full-duplex mode
Blinking Amber	Port is in half-duplex mode and collisions are occurring on the port
Off	Port is in half-duplex mode

LED Indicators

A

Troubleshooting

Table A-1 describes how to troubleshoot problems with your network and/or the Switch by monitoring the Switch's LEDs.

Table A-1 Troubleshooting

Problem	Action
Power LED is off	<p>Make sure the power cord is connected to the power outlet and is properly inserted into the power connector on the switch.</p> <p>Determine if the power outlet is functional by plugging another device into the receptacle.</p>
Link/Data LED is off	<p>Make sure that the Switch and the device on the other end are both powered on.</p> <p>Make sure the link light is on (enabled) for the device on the other end of the cable.</p> <p>Make sure that the device on the other end is a 10/100 TX device.</p> <p>Make sure the proper type of cabling is used between the device and the Switch. (See "Cabling Requirements" on page 2- 8.)</p> <p>Make sure the correct cable is connected between the Switch and the network device.</p> <p>Make sure the cable does not exceed 100 meters.</p> <p>Push the Uplink button again.</p>
Slow performance	<p>Make sure the duplex mode on both ends of the link connection is configured to the same mode (half- or full-duplex).</p> <p>If your adapter card supports NWay auto-negotiation, make sure the driver also supports full-duplex mode.</p>

B

Specifications

FS7000 Series Specifications	
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3z 1000Base-X IEEE 802.3x flow control (in full-duplex mode)
Protocol	CSMA/CD
Data Transfer Rate	Ethernet/Fast Ethernet 10Mbps (half-duplex)/100Mbps (half-duplex) 20Mbps (full-duplex)/200Mbps (full-duplex)
Topology	Star
Network Cables	10Base-T: 4-pair UTP Category 3 or 5 (100m maximum) 100Base-TX: 4-pair UTP Category 5 (100m maximum) 1000Base-SX: dual 62.5/125 micron graded-index multimode fiber-optic cable with an SC connector
Number of Ports	FS7108: 8 x 10/100Mbps ports, 1 x 1000Mbps port FS7016: 16 x 10/100Mbps ports FS7024: 24 x 10/100Mbps ports FS7032: 32 x 10/100Mbps ports FS7116: 16 x 10/100Mbps ports, 1 x 1000Mbps port FS7124: 24 x 10/100Mbps ports, 1 x 1000Mbps port FS7216: 16 x 10/100Mbps ports, 2 x 1000Mbps ports
Connectors	RJ-45 (10Base-T and 100Base-TX)
LEDs	Power MII Power 100/10Mbps Full/Half Duplex Link/Data

FS7000 Series Physical and Environmental Specifications

AC Inputs	100–240 volts AC, 50/60 Hz (internal universal power supply)
Power Consumption	15–30 watts (depends on model/configuration)
Operating Temperature	32° to 104° F (0° to 40° C)
Storage Temperature	-4° to 158° F (-20° to 70° C)
Humidity	10% to 90% non-condensing
Dimensions	FS7108: 17.3 in wide x 9.9 in deep x 1.7 in high (440 x 253 x 43.2 mm) FS7x16: 17.3 in wide x 9.9 in deep x 2.6 in high (440 x 253 x 64.8 mm)
Weight (Shipping)	FS7108: 8 lbs (3.6 Kg) FS7016: 10 lbs (4.5 Kg)
EMI	FCC Class A, CE Class A, VCCI A
Safety	CE, UL, TUV, CUL

FS7000 Series Performance Specifications

Transmission Method	Store-and-forward
RAM Buffer	4MB per device
Filtering Address Table	12K entries per device
Packet Filtering/ Forwarding Rate	10Mbps: 14,880pps per port 100Mbps: 148,800pps per port

Gigabit SX XP Module Specifications	
Standards	IEEE 802.3z 1000Base-X IEEE 802.3x flow control
Data Transfer Rate	Gigabit Ethernet 1000Mbps
Network Cables	Dual 62.5/125 micron graded-index multimode fiber-optic
Number of Ports	One (Tx and Rx)
Connectors	SC
LEDs	Power Link/Data Full Duplex/Collision

Gigabit SX XP Module Physical and Environmental Specifications	
Dimensions	5.7 in wide x 6.9 in deep x 1.0 in high (145 x 175 x 25 mm)
Weight (Shipping)	1 lb (aprox.)
EMI	FCC Class A, CE Class A, VCCI A
Safety	CE, UL, TUV, CUL

Gigabit SX XP Module Performance Specifications	
Transmission Method	Store-and-forward
RAM Buffer	2MB (1MB control buffer)
Filtering Address Table	12K

C

Technical Support

Contacting Technical Support

To contact Asanté Technical Support:

Telephone	(800) 622-7464
Fax	(801) 566-3787
Fax-Back	(800) 741-8607
E-mail	support@asante.com
World Wide Web Site	http://www.asante.com

Technical Support Hours

6:00 a.m. to 5:00 p.m. Pacific Standard Time USA, Monday - Friday.



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